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# THE ISLAND OF FORMOSA

## HANDBOOK AND CATALOGUE OF EXHIBITS

== AT ==

AGRICULTURE BUILDING  
WORLD'S FAIR, SAINT LOUIS  
1904



COMPILED AND PUBLISHED UNDER THE  
DIRECTION OF THE BUREAU OF  
PRODUCTIVE INDUSTRIES,  
GOVERNMENT OF  
FORMOSA,  
JAPAN.

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By Masatomo Isoda,  
SPECIAL COMMISSIONER FOR THE GOVERNMENT  
OF FORMOSA.

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By MASATOMO ISODA,  
SPECIAL COMMISSIONER FOR THE GOVERNMENT OF FORMOSA.



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## PART I.

# The Island of Formosa.

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### GEOGRAPHY.

TO the southwest of the mainland of Japan, with the Loochoo group as stepping stones, leading in an almost unbroken line, lies an island which Portuguese mariners in the sixteenth century, who sailed down its west coast, gave the name of "Ilha Formosa" (Beautiful Isle); and the name "Formosa" has ever since been used for the island in European literature. On the east coast the waves of the boundless Pacific are constantly washing the base of the lofty cliffs, some of them 6,000 feet high. On the south the island is linked to the Philippines through the Bashee Channel, while on the west it is separated from the mainland of China by the Formosa Channel. This island, together with the Pescadores and other smaller islands adjoining it, lying between  $25^{\circ} 30'$  and  $21^{\circ} 40'$  N. L. and  $119^{\circ} 10'$  and  $122^{\circ} 10'$  E. L., was ceded to Japan by China in 1895, as a result of the late war.

The island extends from north to south in the shape of a leaf, 264 miles long and 80 miles wide, from north to south and from east to west respectively. A chain of mountains, with Sylvia in the north and Morrison in the south, with their respective heights 11,470 and 13,880 feet, and many more high peaks between, all covered with everlasting verdure, runs from north to south through almost the entire length of the island. The western half of the island slopes gradually to the westward, and the rivers pouring down from excess of the semi-tropical rains, find their way through fertile plains below to the Formosa Channel. The eastern half, full of mountains and valleys and covered with the thickest woods, where wood cutters' hatchets have but rarely entered, is the undisturbed home of the ancient people, and is a store-house of Nature's wealth, awaiting the new rulers to open its door.

Lying on the Tropic of Cancer, the island bears in respect to location, climate, soil, etc., great similarity to the Island of Cuba. Mere supposition is often misleading. People who have not visited Formosa would naturally imagine that the tropical climate must be excessively hot and unhealthy; true, it is hot in summer, but the constant sea breeze and the frequent showers mitigate the heat, and make the climate agreeable and the island habitable. The record of temperature taken by the



Government during the five years from 1897 to 1901 gives the mean maximum at  $81^{\circ}$ , mean  $73^{\circ}$ , and the mean minimum  $68^{\circ}$ . Formosa is also noted for possessing a variety of climatic conditions. The northern part has generally a much heavier rainfall than the southern. This is accounted for by the Japan stream, which flows upwards along the east coast of the island, and finds its entrance to northern harbors where the cold air from the north comes in contact with the moist air brought by the current and causes a heavy downpour. Kelung, in the extreme north, is famous for being one of the wettest places in the world; its rainfall in one year being as much as 158 inches. Koshum, the next wettest locality in Formosa, is 91; Taihoku, the capital, in the north, and which is within twenty miles of Kelung, has 88; and Tainan, in South Formosa, and the driest part of the island, even has 58 inches.

#### POPULATION.

Formosa has a population of 2,925,072, exclusive of Japanese soldiers garrisoned on the island. According to the latest statistics, the population is divided as follows: 42,124 Japanese, and 2,882,948 natives. The latter may be divided into two sections; the aboriginal Formosans, occupying the interior mountainous region in the north-eastern half of the island, and the Formosan Chinese, who are immigrants from China, and their descendants. The aboriginal Formosans, or as they are commonly called, the "Formosan Savages," are perhaps the most primitive specimens of the human race that can now be found anywhere. According to researches recently made, they belong to the Malay race, and are divided into nine tribes, of which the northern tribes are the most barbarous and hostile. The southern tribes are more or less mild, and some of them have almost entirely given up their barbarous practice of head-hunting, which is so popular among the northern tribes. No definite census can be obtained as to their numbers, but in all probability the entire savage population of the island does not exceed 100,000. Thus, it will be seen that the predominant element of the population is the Formosan Chinese, who are, together with the comparatively small number of Japanese, scattered over the extreme north and western half of the island.

It is with these three different elements of the population that the Japanese administration has to deal. The Japanese in the island are of very recent immigration, and their character needs no mention here. The aboriginal tribes, or the savages, have but little to do with the present administration. The study of this element of Formosa's population, though very interesting from an anthropological standpoint, will be dispensed with in this article, and a few brief remarks on the Formosan Chinese and their customs will be given.



## FORMOSAN CHINESE AND THEIR CUSTOMS.

In the early part of the sixteenth century, when the Dutch were at the height of their prosperity in Formosa, the general disturbance in Fokien Province of the Chinese mainland compelled many families of discontented Chinese to take refuge in Formosa, and by the middle of the same century we find a record of some 25,000 families having settled in the island. Ever since that time Formosa has offered a safe refuge for Chinese in case of trouble on the mainland. An almost incessant flow of Chinese immigrants poured into Formosa, and in later years the Chinese Government in the Island frequently adopted a policy of wholesale immigration, with the result that very prosperous settlements were founded in various localities of the island.

Chinese settlers brought with them the language and general customs of their mother country. They wear the costumes of South China, though some difference in this respect exists between the Fokienese and Cantonese clans. The men wear ques, and the women dress their hair after the South Chinese fashion. The little girls of the Fokienese clan take great pride in having their feet bound as small as possible, believing this adds to the attractiveness of their appearance. The Cantonese girls, however, do not observe this odd custom, and are always laughed at by the others, and often have applied to them such contemptuous expressions as "country maids," or "big feet." As on the Chinese mainland, the Chinese people in Formosa are divided into two distinct social classes, namely, the "Literati" and the "Working" masses. In olden times, the working class, or as they are locally called, the "Coolie" class, was considered entirely devoid of any political rights. Throughout both classes, the habit of smoking opium prevails among men and women—a habit which is accompanied by most dreadful effects upon the health of the people as well as the general well-being of the community.

The Chinese population in Formosa was formerly noted for being rude and disobedient to law, and consequently most difficult to manage. Even the Chinese authorities, thoroughly acquainted with the good and bad in their fellow countrymen, often gave up the idea of peaceful administration in the island. It is true that the Chinese immigrants in Formosa, as history shows, consist chiefly of an adventurous and high-spirited class of people. They had to fight their own way out of difficulties, and were always ready to meet any hardship.

Such were the Chinese until shortly after the Japanese occupation of the island. The Japanese, after a series of struggles, lasting through several years, have eventually succeeded in putting down the disturbances; have introduced a form of government suitable to the welfare of the island people (which will be explained further on), and have



effected general improvement in all directions, thus eliminating the bad social systems and encouraging the good qualities of the people. It should not be thought for a moment that the Chinese element of Formosa's population to-day is as boisterous and wicked as above stated. On the contrary, the Chinese population of Formosa at present is a most industrious, hardy, economical, obedient, contented, and peaceful class of people; very desirable and agreeable, and perhaps the most needed kind of people for this new territory of Japan.

## GOVERNMENT AND ADMINISTRATION.

The government of Formosa is wholly under the control of the Central Japanese Government. In the Governor-General of the island, who is nominally under the authority of the Home Minister, is vested supreme executive authority in Formosa. He has control of the Imperial military and naval forces, and the civil administration is within his jurisdiction. The laws and regulations of Formosa, issued from time to time, have been drawn with regard to the peculiar conditions and requirements of the island. Formosa ordinances emanating from the Governor-General's office, bear his name, and after obtaining the approval of the Formosa Council, require the sanction of the Emperor. This legislative body consists of a Chief of Civil Administration, Chief of Financial Bureau, Chief of Military staff, Chief of Naval Staff, and other official counsellors. The present system, which divides the whole island into twenty administrative districts, assigns the duties of local civil administration to the chiefs of those districts.

In spite of the short period of time under Japanese occupation, and of the difficulties which presented themselves at first, owing to the hostilities of armed robbers against the new rulers, and the peculiar conditions of the inhabitants, widely different from those in Japan proper, the Japanese administration in Formosa has done much for the development of the island, and is doing still more on the lines of education, jurisprudence, sanitation, communication, industry, trade and finance. Over 120 government public schools have been established throughout the island, where modern education is being given to over 14,000 persons, both native and Japanese. Three courts of justice have been established at three important cities, with many branches in minor towns, and the Supreme Court is situated at Taihoku, the capital. Unlike the despotic Chinese courts of former times, which were rife with corruption and abuses, these Japanese courts are exercising just and righteous functions, which are not less important than other official functions for the betterment of the people. Marked progress has been made in the direction of sanitation and medicine over the old Chinese regime. Mu-

nicipal improvements have been largely carried out in all cities and towns; water works and street sewerage of the most modern type have been introduced; house-building regulations have been brought into operation, putting restrictions to the proverbially unsanitary structures of the Chinese. Nine government hospitals have been established at places of more or less importance, where government doctors of high attainments are stationed, giving the most modern medical aid to all patients. Besides these there are also some special government hospitals for the military, and quarantines. Several hundred Japanese doctors who hold licenses from the Board of Sanitation are salaried by the Formosan Government and stationed at almost every town, and native graduates of language schools are taken into the Government Medical School by special inducement, and there taught the science of medicine. Native physicians who have been hitherto practicing medicine are bound by law to take an examination before being allowed to practice their profession, and a special system has been provided for them to receive modern education under Japanese licensed physicians.

Upon the arrival of the Japanese in Formosa the first step they found necessary was the construction of proper roads. With but few exceptions, the roads, or more properly, rugged paths, that were used by the Chinese, were so poor that travel, other than on foot or by chair, was practically impossible. Military operations of the Japanese in the island were rendered impossible without the building of proper highways. The military, therefore, set promptly about road construction. Several hundred miles of roads have been constructed throughout the island in the few years of the Japanese occupation. According to statistics of the year 1901, the total length of roads constructed was about 4,000 miles. During the last three years construction of roads has added very much to the above figures, and at present it is safe to say that at least 10,000 miles have been built. The Government of Formosa is diligently pressing the construction of a trunk line railway from north to south through the island. Work has been commenced at both extremities and is now two-thirds completed. It is to be deeply regretted that, owing to the disapproval of the Imperial Diet of the necessary appropriation for railway construction, some delay has resulted in the plans of the projected work. The work, however, will be entirely completed before long, and the trip from Kelung, the northern port, to Takow, the southern port, will be made possible in a day. The light tramway line, at first constructed exclusively for the purpose of transporting military supplies, and which is now open for public traffic, some 200 miles in length, is affording great convenience.



Prior to the arrival of the Japanese the island had no postal service. To-day, under the Japanese, however, every village has a postoffice. Under the Chinese, the sending of letters from one place to another was a matter of considerable expense and trouble; now, under the Japanese, all mails are carried not only throughout the island, but to any country, at the same rates prevailing on the Japanese mainland. One hundred and sixteen postoffices are scattered throughout the island, with several branch offices of minor importance. As in the mainland, postal roads and telegraph lines are under government control. Over 2,000 miles of telegraph and 600 miles of telephone wires, with cables between Formosa and the Japanese mainland and the Pescadores, have been laid. The government is expending large sums of money for the extension of telegraph and telephone lines every year, and within the last two years, for which the statistics are not yet available, a considerable increase in the figures has been made. Shipping and navigation are also receiving most careful attention from the government. With the view of encouraging navigation between Formosa and Japan and China, the Japanese Government grants subsidies to two large steamship companies of Japan, namely, the Nippon Yusen Kaisha and the Osaka Shosen Kaisha, amounting to \$413,370 per year. These companies run from 25 to 27 steamers a month.

Unfortunately, Formosa is not possessed of really good, natural harbors, which can accommodate large fleets of vessels of the navy as well as large merchantmen. The only natural harbor that can be improved, at any reasonable cost, is that of Kelung. The Japanese, therefore, gave their first attention to the improvement of this harbor. The inner harbor needs dredging, while the outer harbor has to be protected by a breakwater. With such a general plan in view, the first appropriation of \$1,000,000 for preliminary surveys, dredging, construction of piers, etc., was made, and the work began and was completed. The second plan for the construction of the breakwater is a vast enterprise, costing some \$4,000,000, and requiring about six or seven years to accomplish. The general plan has been accepted, and the expenditure approved by the Imperial Diet, but owing to some change in the financial problem of the Central Government, the Diet disapproved the continued execution of the work, and it is, therefore, for the time being, suspended. Without doubt, the completion of Kelung harbor would greatly facilitate shipping and benefit trade. Improvement of the other harbors is also urgently required. Preliminary surveys have been made and further investigations are now in progress, but so far no definite plans have been declared.

## AGRICULTURE AND INDUSTRY.

With every advantage bestowed by Nature, Formosa is eminently destined as an agricultural country. Forestry and fishery are next in importance, though not yet developed. About two-thirds of the total area of the island is covered with mountains and forests, and the remaining one-third is represented by uplands and lowlands susceptible of cultivation, while on all sides the island is surrounded by salt water—the home of boundless fish life. The cultivated land of Formosa may be divided into two kinds, the “paddy fields” or water fields, and dry lands. The former covers about two-thirds of the whole area of flat lands. Rice is the only product of this kind of land, which produces two crops a year. Dry land also produces rice, sweet potatoes, beans and peas, peanuts, sesame, etc., etc. Along the line of Formosa’s special products of economical plants, we find sugar cane, tea, indigo, China-grass, tobacco, various fibre plants, etc. Working stock in Formosa is represented by the water buffalo and the yellow oxen, both being the most important factors in Formosan agriculture. Then come pigs which, together with rice, occupy the largest concession on every-day tables of Formosan natives.

Forestry, if fully developed, would rank second in importance to none in Formosan industries. This is evident from the fact that the interior portion of the island is almost exclusively covered with valuable primeval forests. Here we have a large variety of fine woods, especially hard woods, of enormous value. We also find in these hilly districts, as by-products of forest land, dye-yam, pith, pandanus, etc., etc. A special mention ought to be made of camphor, which is also one of Formosa’s forest products; in fact, is evidently the chief. The crude and wasteful method of manufacture used by Chinese camphor producers has been replaced, under the monopoly system established in 1901, by the advanced Japanese process, and the product is now one of the principal items of export of the island. It may also be mentioned that Formosa is now practically commanding the world’s market for camphor.

Fishery or marine industry of Formosa is now in its infancy; yet its future growth is beyond question. Fishing apparatus hitherto used by native fishermen were crude and defective, but it is hoped that improvement along this line will bring forth before long a very considerable result. Some Japanese fishermen are engaged in fishing in Formosa with favorable result. Great improvement has been made in nurseries of fish and oysters. The salt industry, which is one of the government monopolies, also shows a remarkable progress.



The cane sugar industry is perhaps the principal of all agricultural industries in the island. The principal sugar district lies in the plains of Central and South Formosa. The product may be roughly divided into two kinds, namely, the so-called "brown sugar" and the "white sugar." The chief ports of export of these staples are Takow and Anping, in South Formosa.

The mining industry is also receiving great attention on the part of the Japanese, especially in gold, coal, petroleum and sulphur. Placer gold and gold dust are the principal mineral products of North Formosa. Prior to the Japanese occupation, gold mining was in the hands of Chinese miners, who worked the mines in a primitive manner. After the occupation of the island by the Japanese, improved machines were introduced, and the industry is now being carried out on a large scale, with a yearly output of some \$600,000. Coal mines abound in the island, but the seams are generally thin, and the quality inferior. This industry, therefore, does not, except for local consumption, seem to have a very bright future. As regards sulphur and petroleum, the districts are very limited, and the industry is yet young, and the products are not yet promising.

In regard to foreign trade, it may be stated that Amoy, Foochow, and other Chinese ports, and Hong Kong, being within easy reach by water, trade with these ports is in a flourishing condition. Most staples and daily necessities are being imported from these ports, and the greatest part of Formosan exports also goes to China. The United States, which are the best consumers of the island's teas, are not traded with directly, shipments being made via Amoy or Hong Kong. Trade with the Japanese mainland is increasing considerably year by year, and the economical connection between the island and the motherland is becoming more and more intimate.

With reference to manual industry may be mentioned hat-making, carving, furniture carpentry, gold and silversmiths, leather manufactures, bamboo and rattan manufactures, mattings, etc. But so far these have not obtained their full development. Silkworm raising was attended to by certain Chinese statesmen in the past with some care, but has not yet become an industry. Under the present Formosan government this industry is reported to be quite promising.

A general glimpse of the present conditions in Formosa may be obtained by seeing the Formosan exhibit in the Agriculture Building at the World's Fair. The exhibit, however, is confined to the principal agricultural products, and those which may appeal to the demand of the United States. Important items of trade having little interest in the United States have not been exhibited, so that the exhibit is comparatively small. Short remarks will be made on each of the articles on exhibit.

## PART II.—Exhibits.

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### GROUP 24.

1. Paper—material and unfinished product of.

Exhibitor: *Formosan Government.*

Exhibited for reference purposes.

The articles on exhibit are reeds, bamboo and bamboo pulp, which are being used by the Formosan Government Model Paper Mill at Kagi, Formosa, as materials for paper. The paper-making industry in Formosa hitherto carried out by the natives, is in a very primitive stage, while the materials for the same can be found growing wild in great abundance. The Government established the model paper mill with the object of demonstrating for the natives the utilization of the wild products, and the improved process of paper making. The mill, though not very large in capacity, is equipped with modern machinery run by turbine. The thick and strong bamboo paper exhibited is the product of the Government Model Mill.

2. Japanese Tissue Paper.

Exhibitor: *Kagi Paper Manufacturing Co., Kagi, Formosa.*

Silver Medal, St. Louis Exposition, 1904.

The materials used for the manufacture of this paper are reeds, paper-mulberry, kapoc and bamboo. The mill was started only lately with the object of utilizing the materials so abundantly growing in the island. With the exception of the Government Model Mill, above referred to, this is the only mill now in existence in the whole island which is engaged in the paper-making industry on modern principles. So far, the output is not yet very large, but with the abundance of material in easy reach, cheapness of labor, and ample field for the demand, the industry seems to have a bright future.

### GROUP 34.

3. Bamboo Baskets.

Exhibitors:

*Chiam-sian-lam, Shinchiku, Formosa.*

*Chiam-tin-kiong, Shinchiku, Formosa.*

Silver Medal, St. Louis Exposition, 1904.

Bamboo grows abundantly throughout the island. Its utility in the manufacture of baskets, and the like, would unquestionably be a



matter of great importance in the island's industry. To the exhibitors are due the originality of design, skill in workmanship and finish, which attracted great attention of the World's Fair visitors.

4. Pocket-books and Cigarette Cases.

Exhibitor: *Ruizo Fujikawa, Taihoku, Formosa.*

Gold Medal, St. Louis Exposition, 1904.

These beautiful articles are manufactured of what is locally called "Taika rush," the product of which is considered peculiar to Formosa. The rush is characterized for its fine, light slate color, entirely natural to it, and for its being extremely soft and pliable when split and made into various articles.

5. Valises.

Exhibitor: *Shaku Inaba, Koshun, Formosa.*

Copper Medal, St. Louis Exposition, 1904.

*Alpinia nutans, L.*, which is the material used, is found growing wild throughout the island, and was hitherto used by the natives for making shoes and ropes. The utilization of this material for making valises and other kindred articles is a new application of industry only lately started. The products are both handy and durable.

6. Portfolios.

Exhibitor: *Ruizo Fujikawa, Taihoku, Formosa.*

Gold Medal, St. Louis Exposition, 1904.

These articles are made of Taika rush, the same material as that of pocket books and cigarette cases mentioned above. The principal features of the goods are the beauty and permanence of the natural color, softness, pliability, durability, and the excellence of workmanship. The manufacture of these articles from the rush, like that of others, is quite a new industry in Formosa, and has a promising future.

### GROUP 38.

7. Tables.

Bureau.

Hat-rack.

Exhibitors:

*Taiji Arai, Taihoku, Formosa.*

*Norio Hashiguchi, Taichu, Formosa.*

*Takejiro Kono, Taihoku, Formosa.*

Silver Medal, St. Louis Exposition, 1904.

These beautiful ornamental pieces of furniture are rare specimens of work. The top of the round table, measuring some thirty inches in diameter and one inch thick, showing beautiful grain, like that of red

marble, is a cross section of a knot of Formosan camphor wood. The central support is an artistic log of pomegranate wood, and the bottom stand is made of lungan (*Nephelium longana*) tree.

The little hexagonal table is also made of camphor tree with beautiful black border.

The bureau is made entirely of camphor wood. By pulling out the drawers one can easily smell the delightful, natural odor of camphor, sufficiently strong to render it moth-proof.

Whereas, the camphor industry has been made the government monopoly, no furniture of this valuable wood can be made hereafter. The articles on exhibit were made from the tree the exhibitor had obtained some time previous to the operation of the monopoly laws.

The hat-rack is also made of a fine Formosan hard wood (*Libocedrus sp.*)

## GROUP 61.

### 8. Tamsui Hats.

Exhibitor: *Formosa Hat Mfg. Co., Taiji Arai, Representative, Taihoku, Formosa.*

Gold Medal, St. Louis Exposition, 1904.

Screw pine, or *Pandanus odoratissimus*, L., is a plant that grows wild in profuse abundance throughout the island of Formosa. No utility has ever been made of it until very recently, when, by several years' investigation, it was discovered that the plant produces an excellent fiber that can be utilized as a material for hats, bags, cigar cases, and the like, it being very pliable and light, as well as durable. At first the color of the fibre obtained was not permanent, and changed, by long exposure, from a beautiful white into a yellowish tint. A long and unyielding chemical research, however, has finally crowned the inventor with success, and now the fine, white color, characteristic of the fiber, is entirely permanent. The exhibitor claims originality in quality of material, utilization of waste product, an excellence of workmanship and finish over any other kind of hats ever manufactured. Possessed of such superior qualities, this hat affords great comfort and convenience in wearing, it being extremely light and soft. It can be folded in a compact form when not in use, and can be spread at any moment without fear of breaking and deforming its shape. The workmanship and finish in weaving are simply perfection as to skill. In addition to its original lustre, giving it elegance of appearance, and making it dust-proof, it can be washed again and again without spoiling its quality.



9. Taika Hats and Table Doilies.

Exhibitors:

*Taika Hat and Mat Mfg. Co., Byoritsu, Formosa.*

*Masaji Takei, Taihoku, Formosa.*

*Ruizo Fujikawa, Taihoku, Formosa.*

Silver Medal, St. Louis Exposition, 1904.

The manufacture of Taika hats is quite a new application of material and a new development of industry originated in 1901. The material, which is a kind of rush of *Scirpus Sp.*, is considered to be peculiar to Formosa. The excellence of quality is that it is exceptionally soft and pliable and very light in weight, that it can be folded up and spread out without injuring its shape, therefore, comfortable to wear, convenient to handle, washable and durable. The delicate shade of color that characterizes this rush is absolutely natural to it, no dye being used, hence no fading. The hat is made entirely by hand, and the excellence of workmanship is the result of experience and skill.

The improved white Taika hat has the same merits in quality as the ordinary Taika hat described above, but an improved chemical process has been used to bleach the material, before making it into the hat, and a permanent white color has been obtained, for which the exhibitors claim the merits of improvement and originality in design. The cheapness of price, like the other kind, is also another feature of the hat. Taika doilies are made of the same material throughout, as the ordinary Taika hat, and has the same merits as described before.

Cheapness is the principal feature of all kinds of articles displayed. With reference to the two kinds of hats manufactured of the Taika rush, it will be observed that they can be purchased at a small part of what the famous Panama hat would cost, while in quality they compare favorably with the latter.

### GROUP 83.

10. Photographs of Tea Culture in Formosa.

Exhibitor: *Formosan Government.*

(1). Junks laden with tea at Toakoham.

Bales of tea from neighboring tea districts are generally carried to this place, whence to be sent by junks to Toatutia tea market.

(2). Preparation of tea at Taikosho, Tokampo, up-country tea district.

(3). Preparation of the boxes for tea. On the outside are pasted the labels with designs and inscriptions.

(4). Government Tea Experimental Station at Kilonko (Tokampo).

- (5). Utensils for the preparation of tea. (1) Basket for gathering the leaves. (2) Basket for carrying the leaves when picked. (3) Canvas upon which to heap up and dry the leaves. (4) Tray for softening or withering the leaves. (5) Support for same. (6) Another tray for withering the leaves. (7) Pan for heating the leaves. (8) Frame for mixing the leaves. (9) Cross beam. (10) A sieve. (11) Basket for reheating the leaves. (12) Fan. (13) Shovel. (14) Tongues. (15) A bag. (16) Scales.
- (6). Tea plantation and planters' houses at Bahyosoan, Tokampo.
- (7). Tea plantation at Utokut, Kaizampo.
- (8). Shed for preparing tea by the native process in the Government Tea Experimental Station, Anpinching.
- (9). Tea driers of the Government Tea Factory at Anpinching.
- (10). Tea packing machine at the Government Tea Factory at Anpinching.
- (11). Tea driers in the Government Tea Factory at Anpinching.
- (12). Interior view of the Government Tea Factory at Anpinching.
- (13). Jackson's Tea Rollers in the Government Tea Factory at Anpinching.
- (14). Tea Plantation at Chapgohun, Bunzampo.
- (15). Bales of Tea at the Internal Revenue Office at Toatutia.  
This is the establishment where the quantity of tea for commerce is examined and the tax imposed.
- (16). Tea Plantation at Ochuna, Tokampo.
- (17). Government Tea Experimental Station at Chapgohun, Bunzampo.
- (18). Tea Plantation at Chapgohun, Bunzampo.
- (19). Landing of Bales of Tea in front of Internal Revenue Office at Toatutia.
- (20). Tea Plantation at Chapialiau, Paichipo.
- (21). Tea Plantation at Utokut, Kaizampo.
- (22). Tea Plantation at Toahun, Toshiyen.
- (23). Tea Plantation at Fannaliau (Banshiryo), Kaizampo.
- (24). Government Tea Experimental Station at Kilonko.
- (25). Tea Plantation at Namshakamsoa, Paichipo.
- (26). Tea Plantation at Chopialiau (Sekihekiryo), Paichipo.
- (27). Tea Plantation at Doraken.
- (28). Tea Testing at Toatutia.

## GROUP 84.

### 11. Peanuts.

#### Exhibitors :

*Ang-hak-gian, Shokwa.*  
*Chhao-teng-tong, Shokwa.*  
*Chhao-thak, Toroku.*  
*Chiun-che, Taihoku.*  
*Chiu-pck-ni-po, Shinchiku.*  
*Go-Kun-san, Taihoku.*  
*Go-ang-siu, Taihoku.*  
*Ho-su-chu, Shinchiku.*  
*Iap-hui-cheng, Shokwa.*  
*Iun-ong-chui, Toroku.*  
*Kho-kui, Toroku.*  
*Koch-ti-ko, Toroku.*  
*Ko-se-liong, Shinchiku.*  
*Liau-sin, Taihoku.*  
*Lim-eng-pi, Byoritsu.*  
*Lo-song-bun, Taihoku.*  
*Ng-sin-pu, Shokwa.*  
*Ng-te, Shinchiku.*  
*To-tai-teng, Byoritsu.*

Gold Medal, St. Louis Exposition, 1904.

Formosa produces annually some 571,290 bushels of peanuts. The products are used in the manufacture of oil and confectionery ; also for food. The refuse of the peanut oil is an excellent fertilizer for various agricultural plants. Many different kinds are raised, large and small, and the smaller is considered to be richer in taste.

## GROUP 89.

### 12. Lungan, Dried.

#### Exhibitors :

*Choa-lai-seng, Kagi, Formosa.*  
*Go-sun-an, Yensuiko, Formosa.*  
*Go-khai-heng, Kagi, Formosa.*  
*Khu-tiau-lien, Yensuiko, Formosa.*  
*Kock-iok-seng, Kagi, Formosa.*  
*Liau-giau, Kagi, Formosa.*  
*Lim-tiong-eng, Kagi, Formosa.*  
*Lim-chin-po, Kagi, Formosa.*  
*Lo-lai, Yensuiko, Formosa.*  
*Lo-seng, Yensuiko, Formosa.*  
*Lo-a-seng, Yensuiko, Formosa.*



*Ng-him, Kagi, Formosa.*  
*Ng-sun, Kagi, Formosa.*  
*Tan-hiau-chhun, Yensuiko, Formosa.*  
*Tan-iong, Kagi, Formosa.*  
*Tan-keng-chho, Yensuiko, Formosa.*  
*Tan-toh, Kagi, Formosa.*  
*Tan-tiau-chin, Yensuiko, Formosa.*

Silver Medal, St. Louis Exposition, 1904.

This dried fruit is one of the principal products of the island. Its yearly export to China, for the consumption of the Chinese, amounts to some 266,666 pounds. Great importance is attached to the preservative quality of the fruit, which is prepared by special drying and smoking.

13. Canned Fruits (Pineapple and *Nephelium longana*).

Exhibitor: *Shotaro Okamoto, Hozan, Formosa.*

Silver Medal, St. Louis Exposition, 1904.

Special care is taken in the preparation of these table delicacies. To the exhibitor is due the credit of being the first in Formosa in canning these fruits, abundantly produced in the island. Perfection of skinning, uniformity of specific gravity, clearness of the juice, absence of stinging property peculiar to the fruits, and the excellent natural flavor, are the special merits claimed by the exhibitor in the manipulation. The extraction of the central stem of the fruits and appearance of packing are also attractive features of the goods. The production of pineapple in Formosa in the year 1900 is given at 46,666 pounds.

## GROUP 90.

14. Sugar.

Exhibitor: *Formosa Sugar Mfg. Co., Hozan, Formosa.*

Gold Medal, St. Louis Exposition, 1904.

Perhaps the most important agricultural industry in Formosa, in the very near future, is that of cane sugar. With the beneficial tropical sunshine, most congenial rainfalls and suitable soil and humidity, the vast plains in the central and southern part of Formosa especially entertain keenest enthusiasm for the development of this product.

Under special encouragement of the Formosan Government, the Formosa Sugar Manufacturing Co. was organized with a capital of \$500,000, and commenced operations in December, 1901. The factory is equipped with modern machinery, with a capacity of 350 tons a day. The first plan was to manufacture a brown sugar ranging between Dutch 10 and Dutch 14, and to supply the demand of material for refinery work in Japan, but after the opening of the factory it was decided

to place on the market higher grades of sugar as well. The articles on exhibit are the output of the company.

Sugar.

Exhibitors :

*Lo-keng-ton, Tainan, Formosa.*

Silver Medal, St. Louis Exposition, 1904.

*Ong-soat-long, Tainan, Formosa.*

Silver Medal, St. Louis Exposition, 1904.

*Kock-toan-lai, Tainan, Formosa.*

Copper Medal, St. Louis Exposition, 1904.

*So-hun-the, Ako, Formosa.*

Copper Medal, St. Louis Exposition, 1904.

These articles are the products of the native sugar mills in South Formosa.

Formosa Oolong Tea.

Exhibitor: *Formosa Government Tea Factory.*

These various grades of Formosa Oolong Tea were specially prepared by the Formosa Government Tea Factory at Anpinching, with selected leaves from the plants cultivated for experiment. The manipulation is done by machine.

In this connection it may be mentioned here that all the teas in Formosa have long been prepared by hand labor, and while labor and fuel were cheap, the introduction of machinery was not to be thought of. With the rise in wages and in general prices, also on account of the increasing demand for the Formosan article, it was deemed advisable to introduce machinery in its production. Therefore, in the autumn of 1902, a government factory was erected in Anpinching (Anpeiching), the center of the tea districts, partly as a model, partly as an experiment and partly for demonstration. A large portion of the machinery was brought from England, but the most essential part, namely that connected with the withering of the leaves, upon the degree of which depends the peculiar virtue of Oolong tea, is the invention of a Japanese expert. The capacity of the factory is 500 pounds a day, or 100,000 pounds of manufactured tea during the season. Two years of experience show that a large saving can be made in the cost of production by machinery, as compared with the old method. The process, moreover, insures cleanliness, and as to the quality of the tea, the great fear entertained in regard to its deterioration has proven entirely needless. It is hoped that the use of machinery will become general in the course of a few years.

15. Formosa Oolong Tea.

Pouchong Tea.

Exhibitors: *Formosa Tea Traders' Association, Taihoku, Formosa.*

Grand Prize, St. Louis Exposition, 1904.

A short history of the Formosa Tea Traders' Association may be of some interest.

The original corporation was established in 1885, when the island was under the Chinese Government, but since the Japanese occupation of the island, in 1895, the government saw the necessity of strengthening the basis, and improving the general system of the association, and the present organization was, under special government supervision and encouragement, inaugurated in 1897.

The special merits of the Formosa Oolong tea are mostly on the quality of the material which was obtained by skillful manipulation of many years' investigation and experience.

Besides the artificial manipulation that develops the quality of the product, the plant is being attended with great care, as to selection of soil, young plant, propagation, cultivation, weeding, draining and picking of the leaves. The exhibitors claim the originality of propagation by layering, which is done by bending young branches of the plant and covering them with earth, and when these branches have taken root, in the course of ten or twelve months, they are severed from the mother plant and transplanted. This method of cutting has, by long experience, proved to produce the best results in developing the characteristic qualities of the tea, which in the case of sowing, as is done with most other teas, would be spoiled as to natural flavor and taste. With regard to the utilization of waste products it might be stated that the Formosa Oolong is prepared from the choicest leaves, and as the tea goes through several processes of manipulation, a considerable quantity of waste is produced, in the shape of dust and stalk, which are manufactured into brick tea and stalk tea respectively. The special method of manipulation used in the Formosa Oolong tea, which is prepared so as to ferment only the exterior part of the leaf, like a black tea, and keep the interior unfermented; like a green tea, requires a great amount of skill, and is absolutely inimitable.

The Formosa Oolong tea is neither a black tea nor a green tea. It is a unique kind of its own. Noted for its delightful aroma, it has a peculiar excellence of flavor and strength, without the bitter, astringent qualities of most other teas. It is a well recognized fact that a cup of tea in summer leaves the most cooling and refreshing effect of all beverages. The color and fragrance of Oolong tea are entirely natural



to it, no foreign substances being added to produce its distinctive characteristics. It is the purest of teas.

#### ANALYSIS OF OOLONG TEA.

Chemical Constituents.	Fine.	Ordinary.
Theine .....	1.968	1.933
Tannin .....	9.630	6.163
Albuminoids .....	16.625	15.925
Extract .....	42.822	34.620
Moisture .....	8.838	11.780
Mineral matters .....	6.503	7.600

The Formosan Pouchong is a scented Oolong tea. In addition to the merits of the Formosa Oolong, it possesses a peculiar scent of fragrant blossoms, such as gardenia, magli, etc., etc., and is especially prepared for demands in the South Sea Islands and other Asiatic markets. The Formosan tea has surpassed in reputation all similar products of the extreme Orient imported into American markets. It has raised itself to the highest rank among the articles of commerce of the island, and its export attains to-day the sum of \$3,000,000 per annum, nine tenths of which coming to the United States.

#### 16. Ginger, Dried.

Exhibitor: *Masakata Nakazono, Koshun, Formosa.*

Copper Medal, St. Louis Exposition, 1904.

The Formosan ginger is noted for its strength.

### GROUP 95.

#### 17. China-grass Fiber.

Bleached China-grass Fiber.

Exhibitors:

*Kunisada Sakaki, Taihoku.*

*Shigekichi Komatsu, Tainan.*

*Shinkichi Takei, Taihoku.*

*Isshin, Wakiyama, Tainan.*

Unbleached China-grass Fiber.

Exhibitors:

*Chhi-piang-siong, Byoritsu.*

*Ng-teng-lian, Byoritsu.*

*Tan-kheng-lin, Byoritsu.*

*Tin-cheng-liong, Shinchiku.*

*Sutejiro Yasutake, Kagi.*

Gold Medal, St. Louis Exposition, 1904.

This plant is widely cultivated in and about the interior hilly districts of Formosa, producing four crops a year. The annual export,

which is at present mostly destined for China, for the consumption of the Chinese, is about 2,000,000 to 3,000,000 catties (2,600,000 to 4,000,000 pounds). The fiber of this plant, which varies in length, from two or three feet at the shortest, to eight feet at the longest, is very fine and delicate. The Formosan fiber is much stronger than the Chinese product. This is evident from the fact that, in spite of the abundance of its production in China, the Formosan fiber retains comparatively higher prices than that of China. Another fact, that the Formosan article is considered better adapted as material for fish-nets and other fishing apparatus, is illustrative of the characteristic strength of the fiber where it comes in contact with water. As it is, at present, the utilization of the fiber is not yet fully developed, and the demand is very limited, consequently the production is not very large. The cultivation, therefore, is being carried out on a very primitive basis. The plant is best adapted to newly cultivated land in the vicinity of savage borders. It is thought that the increase in demand for this fiber would naturally stimulate the cultivation of this valuable plant, and the enormous tract of land now in the interior of the island, where the aborigines have their homes, could with ease be converted into rich China-grass fields. The cultivation is now in the hands of the Formosan natives, but the aborigines are considered the best growers of this fiber plant. A bright future awaits the improvements in the cultivation and manufacture of the fiber.

18. Pineapple Fiber.

Exhibitors:

*Li-ien-ti, Hozan, Formosa.*

*An-chai-lian, Tainan, Formosa.*

*Ng-ming-san, Shokwa.*

*So-kwan-sing, Shokwa.*

*Tan-tai, Hozan.*

*Tin-kei, Hozan.*

Silver Medal, St. Louis Exposition, 1904.

This fiber is obtained from the leaves of the pineapple plant and is used as the material for fabric making. The fabric made of this fiber is specially suited for hot summer wear, it being very light and cool.

19. Jute Fiber.

Exhibitors:

*Giam-sun, Tainan.*

*Kho-tek-iong, Shokwa.*

*Lau-teng-hui, Kagi.*

*Loa-toa-gong, Taihoku.*

*Lu-chheng-hun, Giran.*  
*Ng-sin-kiong, Kagi.*  
*Ng-sin-keng, Kagi.*  
*So-hun-tui, Ako.*  
*Tan-mut-hoa, Taihoku.*  
*Tan-tiau-chhiong, Giran.*  
*Tan-i-ham, Shokwa.*

Silver Medal, St. Louis Exposition, 1904.

Jute is one of the principal products of the island, its yearly production being some 1,976,627 pounds, valued at some \$44,474. It is used as material for making ropes, rugs, coarse carpets, etc.

20. Turmeric.

Exhibitors:

*Bok-chhun-lai, Banshoryo, Formosa.*  
*Go-ban-sun, Banshoryo, Formosa.*  
*Heng-thien-lai, Yensuiko, Formosa.*  
*Koa-iu, Banshoryo, Formosa.*  
*Koch-iu, Banshoryo, Formosa.*  
*Liau-hoa-te, Banshoryo, Formosa.*  
*Li-hoe, Banshoryo, Formosa.*  
*Lo-ming-toan, Banshoryo, Formosa.*  
*Lui-chun-san, Tainan, Formosa.*  
*Ong-hap, Tainan, Formosa.*  
*Tan-cheng-kiet, Yensuiko, Formosa.*  
*Tan-chhai-hun, Yensuiko, Formosa.*  
*Tan-iam, Tainan, Formosa.*  
*Tan-tiau-chin, Yensuiko, Formosa.*  
*Tin-teng-kho, Tainan, Formosa.*

Copper Medal, St. Louis Exposition, 1904.

The Formosan product is considered to be very rich in pigment, due to climate and soil. The total production for the year 1899 was 1,353,933 pounds.

## GROUP 112.

21. Photographs of Formosan Forest.

Exhibitor: *Formosa Government.*

- (1). Forest of Mangroves in Takow Cove.
- (2). Gomuto Palm (*Phoenix Humilis*) near South Cape, the southern extremity of Formosa.
- (3). Betel-nut Palm in Kagi.
- (4). Bamboo Grove in Kagi.
- (5). Banyan Trees (*Ficus retusa*) near South Cape.



- (6). Camaya Trees (*Dispyros utilis*, Hemsl), near South Cape, the species allied to "Camagon," of the Philippine Islands.
- (7). Tree Ferns (*Alsophila* sp.) and Plantain, Kagi.
- (8). Formosan Spruce (*Ketelecria* sp.), North Formosa.
- (9). Virgin Forests (3,500 feet above sea level), near Kagi.
- (10). Forest of *Chamaecyparis* Trees (5,500 feet above sea level), in Arisan, near Kagi. This is one of the most extensive coniferous forests of Formosa (acreage estimated at 12,500 acres, and crop at 336,000,000 c. f.)
- (11). Niitakayama (Mt. Morrison), 14,000 feet above sea level, the greatest elevation in Formosa—the highest mountain in the Japanese Empire.
- (12). Chipping Camphor-wood for distillation in a savage district in North Formosa.

### GROUP 113.

#### 22. Camphor and its By-products.

Exhibitors: *Monopoly Office, Government of Formosa.*

Grand Prize, St. Louis Exposition, 1904.

- (1). Crude Camphor, "B" grade.
- (2). Crude Camphor, improved "B" grade.
- (3). Crude Camphor, "A" grade.
- (4). Sublimed Camphor.
- (5). Compressed Camphor, "A" grade.
- (6). Compressed Camphor, "B" grade.
- (7). Saffrol. This is extracted from the refuse of camphor oil.
- (8). Disinfectol. Made from the refuse of the so-called "red oil," after extracting saffrol. This is a remarkably strong disinfectant, and its 100 per cent solution kills microbes of typhoid, cholera, bubonic plague, etc.
- (9). Insector. This is made of the same material as that of the disinfectol, but the proportion of other ingredients differ.
- (10). "Shio-ji-ta" (model of Formosan tower in which waste paper with any writings is burnt). Such a tower, built of brick or stone, is generally found in any village in Formosa, and is usually built in connection with Buddhist temples. The natives, like the Chinese in China, have a great respect for their writings, and consider it a disgrace against the ancient inventor of their characters to spoil any written paper. Hence, waste papers, with any writings on, are carefully gathered and burnt in this tower.

- (11). Package of Sublimed Camphor. Sublimed Camphor is packed in a pound tin box. Sixty of such tins are packed in this wooden box, which is then tied from the outside with iron bands for export.
- (12). Package of Compressed Camphor for both "A" and "B" grades. The method of packing is the same as No. (11).
- (13). Package of Crude Camphor, "A" grade. This shows the packing of "A" grade Crude Camphor. Each block of camphor, 10 kin\* in weight, is wrapped in double paper package. Ten of these blocks, making 100 kin, are put together in a wooden box, with zinc lining, and then tied with iron bands and wire, and sealed.
- (14). Package of Camphor, Improved "B" grade. This shows the packing of the Improved "B" grade of crude camphor. 100 kin of the camphor is packed in this box, lined with zinc. The outside is then tied with iron bands and wire and then sealed.
- (15). Package of Crude Camphor, "B" grade. This shows the packing of "B" grade Crude Camphor. The method of packing is the same as that of the Improved "B" grade.
- (16). Package of Crude Camphor, "B" grade. 150 kin of this grade of crude camphor is packed in this wooden cask. On the edge of the top cover is carefully pasted a thick blue paper, then the whole cask is enveloped in straw matting, which is then tied from outside with straw ropes.
- (17). Package of Saffrol. Saffrol is packed in two different ways. First, the saffrol is put in one-pound bottles. Twelve of these bottles, each wrapped in thick paper, are packed in this outside box. Second, the saffrol is put in a twenty-pound tin, which is then packed in this outside case.
23. Specimens of Timber and Bamboo.  
Exhibitor: *Formosa Government*.  
Gold Medal, St. Louis Exposition, 1904.

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\*1 kin is equal to 1.33 pounds.

(1). *Libocedrus sp.*

Height—About 100 ft.

Circumference—24-25 ft.

Altitude—1,300 ft.

Region—North Formosa.

Yearly production—20,000-50,000 c. f.

Value—\$20,000-\$50,000.

Quality—Very hard. Does not easily bend or crack

It has a beautiful grain, and takes a fine polish.

Uses—Splendid furniture material.

(2). *Keteleeria sp.*

Height—100 ft.

Circumference—16-17 ft.

Altitude—10,000-30,000 ft. on top of mountains.

Region—North Formosa.

Production—Varies according to demand.

Quality—Does not easily bend or crack, and exceedingly durable.

Uses—Building and furniture material.

(3). *Chamaecyparis obtusa, S. et Z.*

Height—130 ft.

Circumference—24-25 ft.

Altitude—5,000-7,500 ft.

Region—Central and South Formosa.

Production—Can produce some 500,000 c. f. annually without fear of exhaustion, but at present the yield is not so large owing to the difficulty of transportation.

Quality—Very fine and durable.

Uses—Building and miscellaneous utensil material.

(4). *Chamaecyparis sp.*

Height—130 ft.

Circumference—24-25 ft.

It grows mixed with *C. obtusa S. et Z.* Its diameter often reaches 4 ft.

Region—Central Formosa.

Quality—Resembles that of *C. obtusa S. et Z.*, but it does not smell so strongly as the latter.

Uses—Same as *C. obtusa S. et Z.*



(5). *Araucaria sp.*

Height—130 ft.

Circumference—24-25 ft.

Altitude—4,500-6,500 ft.

Location and soil—This tree grows upright on damp soil in valleys.

Uses—Building and furniture material. Frequently it is used as roofing planks.

(6). *Tsuga divorsifolia, Maxim.*

Height—70-80 ft.

Circumference—13-14 ft.

Altitude—8,000-10,000 ft. It grows in regular forest.

Region—The whole central mountain range of the above elevation is covered by forest of this tree.

Uses—Building material.

(7). *Podocarpus Nageia, R. Br.*

Height—50-60 ft.

Circumference—7-8 ft.

Altitude—1,000-3,000 ft.

Region—Throughout the island.

Uses—Material for furniture making. This wood is highly valued by the natives as material for beds, chairs, and the like.

(8). *Podocarpus macrophylla, Don.*

Height—50-60 ft.

Circumference—7-8 ft.

Altitude—1,000-3,500 ft.

Region—North Formosa.

Quality—Durable in contact with water and earth.

Uses—Building material.

(9). *Quercus gilva, Bl.*

Height—120 ft.

Circumference—14 ft.

Altitude—1,000-3,500 ft.

Region—North Formosa.

Quality—Superior to all trees of this family on the island.

Uses—Ship-building material.

(10). *Castanopsis* sp.

Height—70-80 ft.

Circumference—8-9 ft.

Altitude—Over 2,000 ft. There are many species of *Castanopsis*, but this particular one is what the natives call "Calolin," and is found in South Formosa.

Uses—Material for agricultural implements.

(11). *Mechelia compressa*, Max.

Height—70-80 ft.

Circumference—8-9 ft.

Altitude—2,000 ft.

Region—The whole island.

Quality and uses—One of the best materials for the manufacture of furniture.

(12). *Cinnamomum camphora*, Nees.

Height—70-80 ft.

Circumference—30 ft.

Altitude—less than 4,000 ft. The best camphor trees are found at an altitude of from 1,500 to 1,600 feet, and frequently in regular forests. The tree thrives in the northern part and gradually diminishes toward the south, until it entirely disappears.

Uses—The timber is used principally for ship-building and bridge materials, as it is exceedingly durable where it comes in contact with water. It is also used for other building purposes, and is the most valuable material for the production of camphor. The wood has a peculiar fragrant odor which, when made into a chest, is absolutely moth-proof.

(13). *Machilus Thunbergii*, S. et Z.

Height—70-80 ft.

Circumference—10 ft.

Altitude—Less than 4,000 ft.

Region—The whole island.

Quality—Durability in water.

Uses—One of the best materials in Formosa for the manufacture of furniture.

(14). *Acacia Richii*, A. Gray.

Height—40-50 ft.

Circumference—5-6 ft.

Altitude—Less than 1,000 ft in South Formosa, but in the north the tree is planted on plains.

Quality—Hard and strong.

Uses—Wheel axles, rudders and oars for boats; also used for building purposes, and is superior material for charcoal.

(15). *Cleditschia* sp.

Height—60-70 ft.

Circumference—10 ft.

Altitude—Less than 2,000 ft.

Region—This tree grows on rocky slopes.

Uses—One of the best furniture materials.

(16). *Murraya exotica*, L.

Height—15-16 ft.

Circumference—3 ft.

Altitude—2,000 ft.

Region—The whole island.

Uses—Material for ornamental furniture.

(17). *Rourea* sp.

Height—40-50 ft.

Circumference—6-7 ft.

Altitude—Less than 2,000 ft.

Region—South Formosa. This tree is mostly found growing on hillsides in densely wooded forest.

Uses—Material for ornamental furniture. The natives value this tree as material for the manufacture of beds, the wood being more nonconductive of heat in hot summer than other woods.

(18). *Bischofia javanica*, Bl.

Height—50-60 ft.

Circumference—10 ft.

Altitude—Less than 1,000 ft.

Region—This tree flourishes in southern half of the island.

Quality—Very durable in contact with water.

Uses—Material for ornamental furniture.



(19). *Gordonia anomala*, Spreng.

Height—60-70 ft.

Circumference—5-6 ft.

Altitude—Less than 2,000 ft.

Region—North and South Formosa.

Quality—Durable.

Uses—Building material; also material for charcoal.

(20). *Calophyllum Inophyllum*, L.

Height—50-60 ft.

Circumference—6 ft.

Altitude—Sea coast.

Region—Koshun, North Formosa.

Quality—Superior.

Uses—Ship and house building material.

(21). *Lagerstroemia subcostata*, Koehne.

Height—40-50 ft.

Circumference—5-6 ft.

Altitude—Below 4,000 ft.

Region—The whole island.

Quality—Very durable where it comes in contact with earth.

Uses—Locally used as material for the manufacture of agricultural implements. As a fuel it produces a strong heat, and is also a splendid material for charcoal.

(22). *Terminalia Cattapa*, L.

Height—50 ft.

Circumference—6 ft.

Altitude—Sea coast and plains.

Region—Koshun, South Formosa.

Uses—Material for furniture and miscellaneous works.

(23). *Sideroxylon ferrugineum*, Hook. et Arn.

Height—50 ft.

Circumference—6 ft.

Altitude—Sea coast.

Region—South Formosa.

Uses—Material for miscellaneous utensils.

- (24). *Diospyros utilis*, Hemsl.

Height—50 ft.

Circumference—6 ft.

Region—Koshun District, South Formosa.

Uses—One of the finest materials for ornamental furniture.

#### BAMBOO.

- (25). *Dendrocalamus latiflorus*, Munro. (?).

The cane and the leaf are the largest of all bamboos in Formosa. Occasionally bamboo of this kind is found measuring over 60 or 70 feet in height and 3 feet in circumference. It grows thickly grouped together. It can be found everywhere in the island, but the mountainous districts of Limkipo, Polisia and Kagi are most noted for its production. The annual production from these districts is about 20,000 pieces, valued at some \$30,000. The natives use this bamboo principally for making their bamboo rafts. It is also used as material for basket-making. From April to September the shoot sprouts out almost constantly, and has a delicious taste. A large quantity of the dried sprouts is being yearly exported to China.

- (26). *Phyllostachys mitis*, Riv. (?).

In size and length this is the next in Formosa to *D. Latiflorus*, Munro., described above, growing to some 50 to 60 feet high, with a circumference of over 2 feet. This bamboo was originally introduced into the island from China, and is planted in many localities, but its production is rather small. It is brittle in quality and is fit only for making some household utensils. The price is about 40 cents apiece. The sheath is used for making hats. The sprout comes out in winter. In its delicacy as a food it is called the king of bamboo sprouts.

- (27). *Bambusa spinosa*, Roxb.

This bamboo grows to a height of about 40 or 50 feet, and has a circumference of some 14 or 15 inches. It has very strong and sharp thorns, somewhat like the nails of a hawk. It grows densely grouped together. The branches and leaves grow also in a great thicket. The sprout never shoots to the outside of the bush. This bamboo is found

everywhere in the island. It is planted around native houses as hedging, it being most effective protection against theft or robbery. It is very hard and strong, and durable, and is best used for flooring of native houses, as well as for making carrying poles and various furniture works. The production is very large, but the amount is not known, the natives cutting the bamboo according to demands. The price of the bamboo on the local market is about 30 to 35 cents per piece (U. S. currency). The sprout comes out in the months of May and June, but is not fit for food.

(28). *Phyllostachys Quiloi*, Riv. (?)

This bamboo varies considerably in size. The larger ones measure some 40 feet in height and 14 or 15 inches in circumference, while the smaller measure only 14 or 15 feet in height, and 3 or 4 inches in circumference. It grows most abundantly in Formosa, from an altitude of 2,000 to 3,000 feet to the lowest flat plains. Large bamboo groves of this species are found in the mountains of Limkipo and Kagi, and the production from these groves amounts to over 200,000 pieces, valued at some \$25,000 to \$30,000 a year. It is the most useful kind of bamboo in Formosa. Being very hard and strong in quality, it is widely used as materials for the flooring of houses, the manufacture of riding-chairs, water-pipes and various household utensils. The split bamboo is also used for the roofing of houses, and making of bamboo band, bamboo blinds, and ribs of paper umbrellas. It is also used in the manufacture of bamboo paper. A large quantity of bamboo paper is manufactured from this bamboo in the mountains of Kimkipo and Kagi. The prices vary from about 20 cents for the largest to ½ cent for the smallest, on the local market. The sheath is used in the manufacture of hats. The bamboo shoot sprouts in the month of March, and has a bitter taste.

(29). "*Liek-tiek*" (*Green Bamboo*).

This bamboo has large and thick leaves. It grows thickly together, the sprouts generally growing inside of the group or bush. Its height is about 24 or 25 feet, and its circumference 7 or 8 inches. This bamboo is planted in many villages, and is very decorative. Its uses are limited to the making of bamboo baskets. From summer to winter the bamboo sprouts out almost incessantly. It is a delicate food stuff, and is chiefly planted for this particular object.



(30). "*Hau-ka-liek-tiet.*"

Height—20-30 ft.

Circumference—8-9 inches.

Region—It grows throughout the island.

Uses—Basket and household utensils.

In May and June the bamboo shoot sprouts, but is not eatable.

(31). "*Bee-tai-tiek.*"

Height—30 ft.

Circumference—7-8 inches.

This bamboo grows upright with smooth knots, which are set far apart. It is planted in nearly every village in Formosa. It is used for making poles for various purposes, also as material for rice-sieves (hence, the local name "*Bee-tai-tiek*," meaning "rice-sieve bamboo"), baskets and hats. Its sprout is edible. The price is about 7 or 8 cents on the local market.

(32). "*Chio-tiek.*"

Height—30 ft.

Circumference—9 inches.

This bamboo is planted in villages all over the island. It is very hard, strong and durable, and is used for making carrying poles, for riding-chairs, etc. The sheath is also used for making hats. The market price of this bamboo is about 15 cents apiece.

(33). "*Pah-ham-tiek.*"

Height—About 20 ft.

Circumference—5-6 inches.

This bamboo grows in villages all over the island. It is soft and flexible, and is used for making awnings, mattings, and baskets. The sprout shoots out in October, but is not edible.

(34). "*Jin-mien-tiek*," *Phyllostachys aurea*, Riv. (?)

The joints of this bamboo are crooked against each other, and the surface of the bamboo between the joints presents very peculiar shapes, very much like the outline of human faces, hence the local name, "*Jin-mien-tiek*," meaning human faced bamboo. It grows to a height of some 20 feet,

and has a circumference of 4 or 5 inches, and is found everywhere in the island. It is used for making walking-sticks, fishing-rods, handles of paper umbrellas, and the like, and its sheath is used for making hats. The sprout is edible. The market price is about 10 cents each.

Specimens of Formosan Hard Woods.

*Katelecria* sp.

*Michelia* sp.

*Cinnamomum camphora*.

Exhibitor: *Taiji Arai, Taihoku, Formosa.*

Gold Medal, St. Louis Exposition, 1904.

For description of these woods see the Formosan Government exhibit of specimens of woods.

Specimens of Formosan Woods.

*Libocedrus* sp.

*Machilus Thunbergii*, S. et Z.

Exhibitor: *Ryujiro Dogura, Shinko, Formosa.*

Gold Medal, St. Louis Exposition, 1904.

For description of these woods see the Government exhibit of specimens of woods.

Bamboo.

"Bee-tai-tiek."

*Phyllostachys quilioi*, Riv. (?)

"Chio-tiek."

*Dendrocalamus Latiflorus*, Munro. (?)

"Tiong-ki-tiek."

*Phyllostachys aurea*, Riv. (?)

Exhibitors:

*Cho-pieng-in, Taihoku, Formosa.*

*Chiam-o-sai, Taihoku, Formosa.*

*Giam-hai, Kagi, Formosa.*

*Lim-pi, Taihoku, Formosa.*

*Lim-go-theng, Toroku, Formosa.*

*Tan-tek-hiong, Nanto, Formosa.*

*Tiu-sui-bok, Nanto, Formosa.*

Copper Medal, St. Louis Exposition, 1904.

For description of these bamboo exhibits see the Government display of specimens of bamboo.

24. "Pan-chhi-men" (Red Cotton).

Exhibitor: *Tan-jit-seng, Banshoryo, Formosa.*

Copper Medal, St. Louis Exposition, 1904.

"Pan-chhi-men," or red cotton, is a soft and downy substance obtained from the flower of a tree growing wild in Formosa. Being extremely woolly and elastic, it is used with best advantage for stuffing beds, cushions, and the like.

25. Dye-Yam.

Pith-Paper Plant.

Exhibitor: *Jenjiro Yoshika, Shinchiku, Formosa.*

Copper Medal, St. Louis Exposition, 1904.

Formosan Dye-Yam is rich in pigment, and is used with best advantage for dyeing fishnets, tea bags, etc. The reddish-brown color that it produces is very durable.

Pith-Paper Plant is exceedingly soft and light. It is best used for making the linings of summer hats, artificial flowers, etc. Lately it was discovered that it can be used as a substitute for cork in microscopic examination in making sectional cuttings.

## GROUP 128.

26. Ethnological Exhibit.

Exhibitor: *Formosa Government.*

Gold Medal, St. Louis Exposition, 1904.

(1). Map showing distribution of Formosan Savages.

The Formosan Savages, all of Malay origin, may be ethnologically divided into the following nine different tribes:

1. Atayal tribe.
2. Vonum tribe.
3. Tsou tribe.
4. Tsalisen tribe.
5. Paiwan tribe.
6. Amis tribe.
7. Puyuma tribe.
8. Saisiett tribe.
9. Yami tribe.

The first mentioned eight tribes, from one to eight inclusive, are scattered over the central mountainous portion, to an elevation of some 5,000 feet, and on the eastern plains of the main island of Formosa,



while the last named, the Yami, occupies the island of Botel Tobago, situated to the southeast of Formosa. They are all very primitive in their stage of life, and their total population is about 96,000. The figures at the bottom of the map give the population of each tribe.

Besides the above, there is another tribe, or group, called "Peipo," which is a Chinese name, meaning "savages of the plains." These people were originally occupying the western plains of the island, hence the name. About 300 years ago, when the Spaniards and Dutch occupied the island, they came under their influence and received some education from them, but some years later, when these western invaders had retired from the island, they came again under the sway of the new conquerors, the Chinese. They have so thoroughly assimilated themselves with the latter that they have entirely lost their own tongue, and have adopted the language and customs of the Chinese. At present they are living side by side with the Chinese, and it is almost impossible for a foreigner to distinguish the two races. The contest for life, however, is steadily working against them, and their population is gradually decreasing, which at present is no more than 30,000.

(2). Photographs of Formosan Savages.

1. Atayal tribe—Male.
  - A. Front view.
  - A'. Side view.
2. Atayal tribe—Female.
  - B. Front view.
  - B'. Side view.
3. Vonum tribe—Male.
  - C. Front view.
  - C'. Side view.
4. Vonum tribe—Female.
  - D. Front view.
  - D'. Side view.
5. Tsou tribe—Male.
  - E. Front view.
  - E'. Side view.
6. Tsou tribe—Female.
  - F. Front view.
  - F'. Side view.
7. Tsalisen tribe—Male.
  - G. Front view.
  - G'. Side view.

8. Tsalisen tribe—Female.  
H. Front view.  
H'. Side view.
9. Paiwan tribe—Male.  
I. Front view.  
I'. Side view.
10. Paiwan tribe—Female.  
J. Front view.  
J'. Side view.
11. Puyuma tribe—Male.  
K. Front view.  
K'. Side view.
12. Puyuma tribe—Female.  
L. Front view.  
L'. Side view.
13. Amis tribe—Male.  
M. Front view.  
M'. Side view.
14. Amis tribe—Female.  
N. Front view.  
N'. Side view.
15. Western Atayal tribe, group of.
16. Eastern Atayal tribe, group of.
17. Vonum tribe, group of.
18. Tsou tribe, group of.
19. Tsalisen tribe, group of.
20. Paiwan tribe, group of.
21. Puyuma tribe, group of.
22. Amis tribe, group of.
23. Atayal tribe, dwellings of.
24. Tsou tribe, dwellings of.
25. Tsalisen tribe, dwellings of.
26. Puyuma tribe, dwellings of.
27. Puyuma tribe, bachelors' dormitory of.
28. Atayal tribe, arrangement of skulls by.
29. Tsalisen tribe, arrangement of skulls by.
30. Atayal tribe, weaving of.

(3). Picture (colored) showing types of different Formosan savage tribes.





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